

PROBLEM

Various parts of a plant are normally linked together – leaves, stems, roots, etc. but by growing the parts separately under sterile conditions it is possible to find out if each can grow independently, or whether it is dependent on material passed from other parts of the plant. You might like to try and get tomato roots to grow

Tomato cultivar Grosse Lisse is a good plant to start with as seeds germinate easily and isolated roots grow well.

3. Prepare sterile Petri dishes each with 3-4 pieces of sterile filter paper in the bottom or with a watch glass wrapped in filter paper (Project 4-18). Add enough sterile water to wet the paper.
4. Sterilize seed by placing in a sterile jar and adding about 100 mL undiluted Miltons and one small drop of detergent. Leave for 35-40 minutes swirling gently about once a minute. Pour off Miltons and shake the seeds in three lots of sterile water. This sounds easy but the seeds escape when you try to pour off the solutions. While you sterilize the seeds also sterilize in undiluted Miltons, the bowl of a small plastic tea strainer and use this to catch the seeds.
5. Using sterile forceps transfer good looking seeds to Petri dishes (about 15 per dish), discard broken and abnormal ones. Seal edges with Gladwrap and place in the dark. They germinate within a week or so.
6. When roots are about 1½ cm long, using sterile instruments cut off the 1 cm tip and place one in each flask of liquid medium. Take precautions when you do this

3. How are you going to compare growth in different treatments? Total root length? Number of laterals?
4. If you are unsuccessful you should try to analyse the reason (a), is your medium contaminated (i.e. gone milky bacteria; with floating or submerged mats of fluffy stuff fungi) (b), did you dry out the root and kill it while cutting it off and transferring it? (c), maybe the strain of tomato you
5. Consider the cost of this experiment before starting. Many of your cultures will be contaminated so you may use several litres of medium.

#### REFERENCES

Butcher, D.N. and Ingram, D.S. (1976). *Plant Tissue Culture* (Studies in Biology No. 65). (Edward Arnold : London).

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